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Analyzing ultrasound effect on physical-chemical properties and evaluation sensory of marinated meat with lactic acid

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Abstract

The use of ultrasound waves in the processes of marination is a new method to reduce time duration of marinating and improve the characteristics of meat. In this research, 2.5×2.5×2.5 cm cubic meat samples were treated by 20 kHz ultrasound waves for 30 minutes with intensities 5, 8, and 12 W/cm^2. Then the meat samples were marinated by 0.2 molar lactic acid for 8 and 12 hours. Acid absorption and pH parameter were measured and then cooking process in hot water bath took place at 90±4°C. Afterward, cooking loss, pH, color change and tenderness were analyzed. The results showed no significant differences in pH values between the ultrasound-treated meat and the control samples. The ultrasound treatment has significant effect on acid absorption. At intensity of 5 W/cm^2, tenderness increases and color changes significantly with less cooking loss from others. By increasing marinating time duration, color, cooking loss, and tenderness features improve and it has no significant effects on the sensory evaluation.

Keywords: Ultrasound, Meat, Marinade, Tenderness, pH, Color, Cooking loss, Sensory evaluation.

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